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## C-A OPERATIONS PROCEDURES MANUAL

### ATTACHMENT

#### 4.120.13.a WXY ( PEER 5 ) CRITICAL DEVICE TESTS

C-A-OPM Procedures in which this Attachment is used.		
4.120.13		

#### Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: \_\_\_\_\_ ***Signature on File*** \_\_\_\_\_  
 Collider-Accelerator Department Chairman Date

V. Castillo

C-A-OPM-ATT 4.120.13.a (Y)

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Revision 01  
 October 12, 2005

**4.120.13.a WXY ( PEER 5 ) Critical Device Tests**

**PASS ANNUAL ACCEPTANCE TEST PROTOCOL**

**Division A Software Filename and Checksum: Title:**\_\_\_\_\_ **Checksum:** \_\_\_\_\_

**Division B Software Filename and Checksum: Title:**\_\_\_\_\_ **Checksum:** \_\_\_\_\_

**Initial testing complete:**

**Test Team Leader's Name (Print):** \_\_\_\_\_ **Life Number:** \_\_\_\_\_

**Test Team Leader's Name (Sign):** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Acceptance test procedure complete (following repairs and retesting if required):**

**Test Team Leader's Name (Print):** \_\_\_\_\_ **Life Number:** \_\_\_\_\_

**Test Team Leader's Name (Sign):** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Test results reviewed by:**

**Safety Section Head's Name (Print):** \_\_\_\_\_ **Life Number:** \_\_\_\_\_

**Safety Section Head's Name (Sign):** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Test results accepted by Radiation Safety Committee:**

**RSC Member's Name (Print):** \_\_\_\_\_ **Life Number:** \_\_\_\_\_

**RSC Member's Name (Sign):** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

## 1.1 Setup and test of the Critical Devices response to a loss of PASS enable.

<input type="checkbox"/>	<b>VERIFY</b>	<b>CD Key switch</b> is set for	<b>XY ARC</b>
	<b>PLACE</b>	<b>Peer 5 in Mode 8</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5</b> is in <b>Restricted Access</b>	<b>MODE 8</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>Inj CD</b>	<b>DISABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>ON</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring CD</b> (B/S: <input type="checkbox"/> G1, <input type="checkbox"/> G2, <input type="checkbox"/> G3)	<b>DISABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G1 and G2)	<b>ON</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G3)	<b>OFF</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>OFF</b>
	<b>PLACE</b>	<b>Peer 5 in Mode 16</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5</b> is in <b>Controlled Access</b>	<b>MODE 16</b>
	<b>CLOSE RESET</b>	<b>Peer 5 gates: UED1, WGE1, WGE2, XGI1, XGI2, YGI1 and YGI2</b>	
		<b>Peer 5 gates: WGE1, WGE2, XGI1, XGI2, YGI1 and YGI2</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5 gates: WGE1, WGE2, XGI1, XGI2, YGI1 and YGI2</b>	<b>RESET</b>
	<b>SWEEP</b>	<b>Peer 5 Zones: W, X and Y</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5 Zones: W, X, and Y</b>	<b>SWEPT</b>
	<b>PLACE</b>	<b>Peer 5 in Mode 24</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5</b> is in <b>No Access</b>	<b>MODE 24</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>Inj CD</b>	<b>ENABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>OFF</b>
	<b>REQUEST</b>	<b>RHIC Primary Beamstop command OUT</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>RHIC Primary Beamstop command</b> is	<b>OUT</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring CD B/S</b> : <input type="checkbox"/> G1, <input type="checkbox"/> G2, <input type="checkbox"/> G3	<b>DISABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G1 and G2)	<b>OFF</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G3)	<b>OFF</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>OFF</b>
	<b>TURN OFF</b>	<b>Any key in the WXY Key Tree</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>Peer 5</b> go to	<b>MODE 2</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>Inj CD</b>	<b>DISABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>ON</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring CD</b> (B/S: <input type="checkbox"/> G1, <input type="checkbox"/> G2, <input type="checkbox"/> G3)	<b>DISABLED</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Ring inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G1 and G2)	<b>OFF</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>RHIC Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> (BS G3)	<b>OFF</b>
<input type="checkbox"/>	<b>VERIFY</b>	<b>MCR</b> sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>	<b>OFF</b>
	<b>PLACE</b>	<b>Peer 5 in Mode 8</b>	
<input type="checkbox"/>	<b>VERIFY</b>	<b>Peer 5</b> is in <b>Restricted Access</b>	<b>MODE 8</b>
<input type="checkbox"/>	<b>Check for acceptance of Setup and test of the Critical Devices response to a loss of PASS enable.</b>		

## 1.2 Verify Critical Device, PSWarc20 and PSWarc8, Reachback

- |                          |   |  |                  |
|--------------------------|---|--|------------------|
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>CD Key switch</b> is set for  | <b>XY ARC</b>    |
|                          | <b>PLACE</b>  | <b>Peer 5 in Mode 8</b>  |                  |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>Peer 5</b> is in <b>Restricted Access</b>   | <b>MODE 8</b>    |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>                 | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>OFF</b>       |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>AGS Reachback Latch</b> on CD pg   | <b>OK</b>        |
|                          | <b>REMOVE</b>   | <b>PSWarc20</b> readback <b>relay</b> from <b>CD Iface Box B</b> circuit in <b>encl 5601</b> in <b>1000P</b>         |                  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>                 | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>AGS Reachback Latch</b> on CD pg   | <b>REACHBACK</b> |
|                          | <b>REPLACE</b>  | <b>PSWarc20</b> rdback <b>relay</b> in <b>CD Iface Box B</b> circuit in <b>encl 5601</b> in <b>1000P</b>             |                  |
|                          | <b>RESET</b>  | <b>Reachback</b>   |                  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>                 | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>OFF</b>       |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>AGS Reachback Latch</b> on CD pg   | <b>OK</b>        |
|                          | <b>REMOVE</b>   | <b>PSWarc8</b> readback <b>relay</b> from <b>CD Iface Box A</b> circuit in <b>encl 5600</b> in <b>A House</b>        |                  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>                 | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>AGS Reachback Latch</b> on CD pg   | <b>REACHBACK</b> |
|                          | <b>REPLACE</b>  | <b>PSWarc8</b> readback <b>relay</b> in <b>CD Iface Box A</b> circuit in <b>encl 5600</b> in <b>A House</b>          |                  |
|                          | <b>RESET</b>  | <b>Reachback</b>   |                  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/>                 | <b>ON</b>        |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>ATR Reachback Latch inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>OFF</b>       |
| <input type="checkbox"/> | <b>VERIFY</b>   | MCR sees <b>AGS Reachback Latch</b> on CD pg   | <b>OK</b>        |
| <input type="checkbox"/> | <b>Check for acceptance of test Verify Critical Device, PSWarc20 and PSWarc8, Reachback</b> |  |                  |

**1.3 Verify that under power Critical Device: PSWarc20 and PSWarc8 are disabled with broken Keytree**

- |                          |   |   |                 |
|--------------------------|---|---|-----------------|
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>CD Key switch</b> is set for   | <b>XY ARC</b>   |
|                          | <b>PLACE</b>  | <b>Peer 5</b> in <b>Mode 24</b>   |                 |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>Peer 5</b> is in <b>No Access</b>  | <b>MODE 24</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Inj CD</b>   | <b>ENABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>OFF</b>      |
|                          | <b>TURN ON</b>  | <b>PSWarc20</b> and bring up to ~100 mA   |                 |
|                          | <b>TURN</b>   | <b>Any key</b> in <b>ATR keytree</b>  |                 |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b> |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>ON</b>       |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Peer 5</b> is in   | <b>MODE 2</b>   |
|                          | <b>RESET</b>  | <b>All Peer 5</b> trips   |                 |
|                          | <b>PLACE</b>  | <b>Peer 5</b> in <b>Mode 24</b>   |                 |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>Peer 5</b> is in <b>No Access</b>  | <b>MODE 24</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Inj CD</b> on CD pg  | <b>ENABLED</b>  |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>OFF</b>      |
|                          | <b>TURN ON</b>  | <b>PSWarc20</b> and bring up to ~100 mA   |                 |
|                          | <b>TURN</b>   | <b>Any key</b> in <b>ATR keytree</b>  |                 |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Inj CD</b> on CD pg  | <b>DISABLED</b> |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>ATR inhibit Div A</b> <input type="checkbox"/> and <b>Div B</b> <input type="checkbox"/> | <b>ON</b>       |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>MCR</b> sees <b>Peer 5</b> is in   | <b>MODE 2</b>   |
|                          | <b>RESET</b>  | <b>All Peer 5</b> trips   |                 |
|                          | <b>PLACE</b>  | <b>Peer 5</b> in <b>Mode 8</b>  |                 |
| <input type="checkbox"/> | <b>VERIFY</b>   | <b>Peer 5</b> is in <b>Restricted Access</b>  | <b>MODE 8</b>   |
| <input type="checkbox"/> | <b>Check for acceptance of Verify that under power Critical Device: PSWarc20 and PSWarc8 are disabled with broken Keytree</b> |   |                 |

**END OF TEST PROCEDURE**

**TTL: Sign for completion of initial testing:** \_\_\_\_\_

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**TTL: Sign for completion of final testing:** \_\_\_\_\_

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_